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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,159	01/09/2001	Seung-ho Tak	30781-1	2574

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EXAMINER

DAVIS, ZACHARY A

ART UNIT PAPER NUMBER

2137

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/700,159

Applicant(s)

TAK, SEUNG-HO

Examiner

Zachary A. Davis

Art Unit

2137

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20010404, 20031114.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 1-3 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10 January 2005.
2. Claims 4-17 are currently under examination in the present application.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 1s, 2s, 2L, and 1L (see page 14, lines 14-15; see also page 16, line 20). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:

The specification appears to contain minor typographical and other errors. For example, on page 9, line 26, it appears that one of the instances of the phrase “are adopted” should be deleted. On page 16, lines 30-31, in the phrase “the respective amounts of current being additionally measured and operated”, it appears that “being” should read “are”. The sentence at page 20, lines 7-14, beginning “In the electric power consumption mode table 11”, is generally vague and does not appear to have a subject. Further, on page 22, line 29, it is unclear what is meant by the phrase “tartar sealing”.

The specification contains several acronyms that are not defined in the specification. On page 5, line 21, and page 24, line 28, reference is made to “a P-ATM (EMV '96)”. While this appears to be a reference to a personal ATM according to the Europay MasterCard Visa specification, it is not specifically defined in the specification. The acronym “RTC” first appears at page 15, line 12. Although this is later defined in the specification to represent a “real time clock” (see page...), it is not defined at this first appearance. On page 18, line 21, reference is made to an “ARS server”, and on page 23, lines 8-9, reference is made to an “ARS of the electric power seller or the electric power re-seller”. “ARS” is not defined in the specification. On page 23, line 13,

reference is made to an "AN", which is not defined in the specification. On page 25, line 1, reference is made to a "VAN". While this appears to refer to a value added network, it is not clearly defined in the specification.

Appropriate correction is required.

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

6. Claims 9 and 13 are objected to because of the following informalities:

Claim 9 recites the limitation "a real time clock comprised of year, month, time, minute, and second". It appears that "time" is intended to read "hour".

In reference to Claim 13, it appears that "comprising" in line 2 of the claim should read "comprises". Further, it appears that "which" should be inserted before "prevents" in line 3.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 4-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitations "the host" in line 5 of the claim, "the value information" in line 9, "the authorization process" in line 10, and "the balance result" in lines 12-13. There is insufficient antecedent basis for these limitations in the claim. This renders the claim indefinite. Further, the claim recites the limitation "the amount of electric power consumed per unit time" in line 15. It is noted that this language is imprecise, as power is already a rate of energy per time; it appears that this is intended to refer to an amount of electric energy consumed in a unit time. It is additionally noted that "the terminal" of lines 5-6 has been assumed to refer to the "input and output terminal" of lines 1-2.

Regarding Claims 5, 6, 9, and 12, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Further in reference to Claim 6, the use of the term "things" in line 3 of the claim is generally broad, non-specific, and unclear.

Claim 7 recites the limitation "the balance of the token exchanger" in lines 8-9 of the claim. There is insufficient antecedent basis for this limitation in the claims.

Claim 11 recites the limitations "the balance of the value", "the transfer state of the value", "the real time electric power consumption status", and "the accumulative

electric power use states". There is insufficient antecedent basis for these limitations in the claims.

Claim 12 recites the limitation "a P-ATM (EMV '96)". While this appears to be a reference to a personal ATM according to the Europay MasterCard Visa specification, this is not explicitly defined in the claim. This renders the claim indefinite. Further, the claim recites the limitations "the host server" in line 6 and "the user" in line 7. There is insufficient antecedent basis for these limitations in the claims. Additionally, the claim recites the limitation "the value store electric power meter which can be used for simple and sound fee payment means by a SET electronic commercial transaction process using next generation credit and direct payment cards of EMV '96 mixed with the IC card reader and recorder" in lines 1-4. Although this appears to refer to the "value store electric power meter" to which the independent claim is directed, the additional limitations have not been previously described, and are generally narrative and unclear.

Claim 16 recites the limitations "the value of the subscriber" and "the detailed electric power status of the subscriber" in lines 5-6. There is insufficient antecedent basis for these limitations in the claims. Further, the claim recites the limitation "the value transfer and store electric power meter" in lines 7-9. There is insufficient antecedent basis for this limitation in the claims, although it appears to refer to the "value store electric power meter" to which the independent claim is directed.

Claims not specifically referred to above are rejected due to their dependence on a rejected base claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4, 7-11, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frew et al, US Patent 4803632, in view of Sloan, US Patent 4731575.

In reference to Claim 4, Frew discloses an electric power meter including a power consumption operating portion measuring the voltage and current of a power line and calculating used power (column 5, lines 37-53), a power modem for performing communication through the power line (column 5, lines 7-12; column 7, lines 55-60), a storing portion for storing a value (column 1, lines 24-46, noting that cumulative energy use and cost or credit are displayed, and therefore stored), a switch for breaking the supply of power (column 10, lines 20-25, in which the utility may be shut off), and a token exchanger that reduces tokens from the stored value according to the amount of power used (column 4, lines 51-55), in which a new token is requested when a token is exhausted (see column 10, lines 20-25). However, Frew does not explicitly disclose the use of a secure storing portion that uses encryption.

Sloan discloses an electric power meter that includes a secure storing portion (column 3, lines 42-54) using an encryption key and algorithm for storing a value

(column 3, lines 26-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the power meter of Frew by including a secured storing portion using encryption, in order to provide a simple, inexpensive, and secure utility metering system (see Sloan, column 2, lines 3-12).

In reference to Claim 7, Frew further discloses a converter for supplying an operating voltage required by the electric power meter (see Figure 4, power supply), a power consumption sensor for indicating when power is normally or surreptitiously used (see column 1, line 45), and a buzzer for generating an audible alarm indicating that a user must add a new token when a balance of value is exhausted (column 10, lines 17-29).

In reference to Claim 8, Frew further discloses a shunt resistor for measuring current (column 2, lines 3-9), a voltage divider for connecting two resistors in series and selecting a voltage range within the range of a meter (see Figures 4 and 5), a current analog to digital converter, a voltage analog to digital converter (Figure 5, ADC 164; column 8, lines 14-17; column 5, lines 49-53), and that the phase of the voltage is compared with the phase of the current and a phase angle is calculated (see column 1, line 37; column 6, lines 20-23). Although Frew only discloses 12 bit digital signals (column 5, lines 49-53), official notice is taken that it would have been obvious to one of ordinary skill in the art at the time the invention was made to increase the resolution of the analog to digital converters to produce outputs of 16 or 20 bits, in order to increase the accuracy of the measurements and calculations.

In reference to Claim 9, both Frew and Sloan further disclose a power consumption table that applies multiple step power use rates according to supply and demand states on the basis of a real time clock (see Frew, column 5, line 65-column 6, line 14; see also Sloan, column 5, line 66-column 6, line 2, and column 9, line 62-column 10, line 9).

In reference to Claim 10, Frew further discloses a nonvolatile memory storing an ID number (see column 1, line 31, where the serial number is displayed and therefore stored) and recording an electric power use state during a certain period (see column 4, lines 42-66) and monitoring surreptitious or abnormal use of power (column 1, line 45; see also Table 1, describing an anomalous use of power).

In reference to Claim 11, Frew further discloses an LCD display for visually displaying a balance, a transfer state, a power consumption status, and accumulated power use states (Figure 1, displays 22 and 28; Figure 5, LCD 198; column 1, lines 24-46).

In reference to Claim 13, Sloan further discloses that the meter includes a cover and physical sealing (column 3, lines 47-49).

In reference to Claim 14, although neither Sloan nor Frew explicitly discloses an arrester circuit, official notice is taken that it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an arrester circuit or surge protector, in order to reduce the danger of damage from lightning or power surge.

In reference to Claim 15, Frew further discloses a current transformer for measuring current (column 2, lines 3-9) and that the power meter is connected to local and area service and surveillance units (column 5, lines 13-27).

11. Claims 5, 6, 12, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frew in view of Sloan as applied to claims 4 and 15 above, and further in view of Reccia et al, US Patent 6039247.

In reference to Claims 5 and 6, Frew and Sloan disclose everything as applied to Claim 4 above. Frew further discloses the use of a credit card for payment (column 3, line 64-column 4, line 6) and that other meters can receive value from the electric power meter (column 1, lines 41-49; column 13, lines 22-23; Table 1). Additionally, Sloan further discloses the use of a magnetic card (column 2, lines 29-34) and the use of other meters (column 13, lines 4-9). However, neither Frew nor Sloan explicitly discloses the use of an IC card.

Reccia discloses a system for storing and transferring value for services including utility meters (column 1, lines 7-24) in which an IC card can be used to transfer the value (column 3, lines 1-6, where a chip card or smart card can be used). Although Reccia does not explicitly recite the use of terminals of the ISO 7816 standard, it is well known that this standard applies to interfaces for smart cards. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the electric power meter of Frew and Sloan by including the use

Art Unit: 2137

of a smart card reader, in order to allow for the secure transfer of a value to a designated receiver (see Reccia, column 3, line 66-column 4, line 2).

In reference to Claim 12, Frew further discloses means for performing communication with a server or transmitting a message (column 4, line 66-column 5, line 12). Reccia further discloses a keypad for requesting a value (column 3, line 66-column 4, line 6).

In reference to Claim 16, Frew and Sloan disclose everything as applied to Claim 15 above. Frew further discloses automatically transferring value when value is requested to be stored (column 3, line 64-column 4, line 6), monitoring and managing legal use of value (column 1, line 45; see also Table 1, describing an anomalous use or theft of power), and totaling and analyzing detailed electric power status (see column 1, lines 24-46; column 5, line 65-column 6, line 10; column 13, lines 49-53). Additionally, Sloan further discloses the use of a magnetic card (column 2, lines 29-34) and a master key (column 2, lines 20-25). However, neither Frew nor Sloan explicitly discloses the use of an IC card.

Reccia discloses a system for storing and transferring value for services including utility meters (column 1, lines 7-24) in which an IC card can be used to transfer the value (column 3, lines 1-6, where a chip card or smart card can be used). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the electric power meter of Frew and Sloan by

including the use of a smart card reader, in order to allow for the secure transfer of a value to a designated receiver (see Reccia, column 3, line 66-column 4, line 2).

In reference to Claim 17, Frew further discloses a voltage divider (column 2, lines 3-9), voltage and current analog to digital converters (Figure 5, ADC 164; column 8, lines 14-17; column 5, lines 49-53), relay, and shunt resistor (column 2, lines 3-9) for measuring at least two kinds of voltages (column 11, lines 11-19, where multiple circuit measurements can be made).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Williams, US Patent 5842187, discloses a utility metering system that can utilize smart cards.
- b. Ehlers et al, US Patent 5924486, discloses an energy use management system that includes the use of smart cards.
- c. Brunn et al, US Patent 6333975, discloses an intelligent utility meter able to communicate with a network.
- d. Dunkley et al, European Publication EP 0151874, discloses a utility meter using a card storing encrypted data.
- e. Berg et al, PCT Publication WO91/10976, discloses a system for using encoded cards with a utility meter.

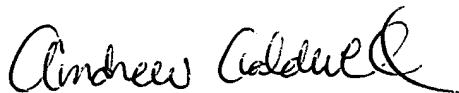
- f. Payne, UK Publication GB 2265016, discloses an electric power meter using a card reader.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary A. Davis whose telephone number is (571) 272-3870. The examiner can normally be reached on weekdays 8:30-6:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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**ANDREW CALDWELL
SUPERVISORY PATENT EXAMINER**